



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,152	04/08/2004	Hideto Yoshida	Tsuruwaka C-46	8976
23474	7590	09/28/2006	EXAMINER	
FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631			REIFSNYDER, DAVID A	
			ART UNIT	PAPER NUMBER

1723

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,152

Applicant(s)

YOSHIDA ET AL.

Examiner

David A. Reifsnnyder

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

Drawing Fig. 2 on sheet number 2/10 is objected to because reference number "103" includes Japanese writing. A corrected drawing sheet number 2/10 in compliance with 37 CFR 1.121(d) is required in reply to the Office action to avoid abandonment of the application. The fig. 2 should not be labeled as "amended." The correct drawing sheet 2/10 must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The following is a quotation of 37 CFR 1.71(a):

(a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

The specification is objected to under 37 CFR 1.71 (a) because the teaching of the instantly claimed cyclone separator can not be understood. The specification discloses in the abstract, the summary of the invention, and the description of the preferred embodiments that the cyclone separator comprises: "a cyclone portion for generating an eddy flow at a given flow rate by feeding a fine particle-containing solution, transferring the fine particles to the outer side by centrifugal forces to issue

the solution after separating the fine particles, and precipitating the separated fined particles by decelerating the eddy flow” However, the specification fails to explain what is meant by the outer side, and to issue the solution after separating the fine particles.

In addition, the abstract of the disclosure is further objected to because it is too long. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 USC 112, 1st paragraph for the reasons given above in the objections under 37 CFR 1.71.

Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The “electrode of the particle box” is critical or essential to the practice of the invention, but not included in claim 8. ***See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).***

Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The “electrode rod” is critical or essential to the practice of the invention, but not included in claim 9. ***See In re Mayhew, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1; the recitation of "a particle trap box for trapping the precipitated fine particles in the cyclone portion through a communication hole" is vague and indefinite as to how the "cyclone portion" is structurally related to the "communication hole", and how the "communication hole" is structurally related to the "particle box". Because of this it is vague and indefinite as to how **the "particle box" is structurally related to the "cyclone portion"**. In addition, the recitation of "transferring the fine particles **to the outer side** by a centrifugal force **to issue the solution after separating the fine particles from the flow-out passageway**" does not make sense and can not be understood. Furthermore, "by applying a potential between the electrode rod and an electrode of the particle trap box"; is vague and indefinite as to what is meant by **"an electrode of a particle trap box"**.

Regarding claims 4 and 11; the recitations of "the upper end" and "the lower part" both lack antecedent basis. Furthermore, the recitation of "the upper end of the electrode rod is **elongated to the lower part** of the cyclone portion" does not make sense.

Regarding claims 6 and 13; the recitations of "the upper part" and "the electrode bar" both lack antecedent basis.

Regarding claim 8; the recitation of “transferring the fine particles to the outer side by a centrifugal force to issue the solution after separating the fine particles” does not make sense and can not be understood. Also, the fine particles are not part of the intently claimed cyclone separator; therefore, the recitation of “said electrode rod being charged with the same electric charge as that of the fine particles” is vague and indefinite as to what charge the electrode rod has.

Regarding claim 9; the recitation of “transferring the fine particles to the outer side by a centrifugal force to issue the solution after separating the fine particles” does not make sense and can not be understood. Also, the fine particles are not part of the intently claimed cyclone separator; therefore, the recitation of “said electrode of said particle trap box being charged with an electric charge as opposed to that of the electric charge of the fine particles” is vague and indefinite as to what charge the electrode has. Furthermore, “by applying a potential between the electrode rod and an electrode of the particle trap box”; is vague and indefinite as to what is meant by “an electrode of a particle trap box”.

Regarding claim 10; the recitation of “transferring the fine particles to the outer side by a centrifugal force to issue the solution after separating the fine particles” does not make sense and can not be understood. Also, the fine particles are not part of the intently claimed cyclone separator; therefore, the recitations of “said electrode rod being charged with the same electric charge as that of the fine particles” and “said electrode of said particle trap box being charged with an electric charge as opposed to that of the electric charge of the fine particles” is vague and indefinite as to what

Art Unit: 1723

charges the electrode rod and electrode have. Furthermore, "by applying a potential between the electrode rod and an electrode of the particle trap box"; is vague and indefinite as to what is meant by **"an electrode of a particle trap box"**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Couture et al. who discloses a hydrocyclone with electrodes located in a particle trapping area of the hydrocyclone. Furthermore, Couture et al. inherently or at least obviously includes all of the limitations as claimed in claims 1-14. (see Figs. 6, 13 and 14) This is a proper 102/103 rejection because it can not be determined as to exactly what the applicant is claiming.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barak et al. who discloses a hydrocyclone comprising an electrolytic cell, wherein the hydrocyclone is in fluid communication with a particle trap box.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Reifsnyder whose telephone number is (571) 272-1145. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


David A Reifsnyder
Primary Examiner
Art Unit 1723

DAR